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JOHN N. DALTON, GOVERNOR

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COVER: Prothonotary Warblers, by Rockne Knuth, Fond du Lac, Wisconsin

Editorial

TAKE SOME KIDS FISHING

The American Fishing Tackle Manufacturers Association has launched an ambitious program through its Sports Fishing Educational Foundation to encourage fishing. "Fish and feel free" was the theme of their overall campaign which emphasized the mental and physical health benefits of fishing.

Perhaps more important is their effort to involve young people in fishing through their National Youth Fishing Program. A leaders guide has been developed and tested and is now being offered to assist volunteer leaders in organizing group fishing activities. Involving young people in fishing is as rewarding to the teacher as to the student. People introduced to the joys and traditions of angling at an early age are less apt to become the fish-hogs and poor sports of tomorrow. Fishing is a therapy that can renew body and soul in the roughest of times. Thus, sparking an interest in fishing can be a gift of great value throughout life. Long after the body becomes too old for softball games fishing can provide valuable exercise and exquisite relaxation.

The instructor's guide, *Fishing Fundamentals For Beginning Anglers*, includes detailed instructions with illustrations for teaching basic bait, fly and spin casting. Picture sequences show casting technique while captions underscore important teaching points. The instruction guide includes sections on basic concepts of fresh and salt water angling, selection of equipment, plus cleaning and caring for the catch. Ecological and conservation aspects are explored and safety is stressed. A companion student edition is nearing completion including drills, games and contest to sharpen basic casting skills. It also provides tips from the experts on how to catch more fish.

The *Leaders Guide for Organizing Group Fishing Activities* should prove invaluable to persons venturing into this area for the first time. Included are instructions for organizing fishing activities, forming youth fishing clubs, how to raise funds and how to gain community support.

Included in the kit are a series of five booklets covering rods, reels, lures, lines and accessories.

The whole package is furnished in loose-leaf form at $11.50 per kit. For more information write Robert Bluth, AFTMA Sport Fishing Educational Foundation, 2625 Clearbook Drive, Arlington Heights, Il. 60005.

—HLG

Letters

BACK AGAIN

For many years, I subscribed to your magazine and enjoyed it. Then it seemed to become primarily concerned with hunting and fishing, so I discontinued it. In recent years, I've discovered how much I've been missing. You now print articles that are enjoyable and informative to a much broader segment of the population. Among my favorites is the regular column by Elizabeth Murray. Please keep up the good work.

Mrs. W. J. Netsun
Roanoke

We've tried to come up with something for everybody in our magazine, from hunters and fishermen to wildflower and bird lovers. Glad you've noticed!—Asst. Editor

IN PRAISE OF BLUEGILL

I tried Mr. Ramsey's method of catching bluegill (May) and was very successful. I was skeptical of using the float and popper, but when I caught my twentieth fish, I knew that I had been mistaken. A friend with me also switched to this method and within the next hour, he had 22 fish and I had 36!

Clyde E. Wetherington
Springfield

Mr. Ramsey mentioned having trouble with the batter recommended for frying the fish in the article. We'll check into it and try to find the problem.—Asst. Editor

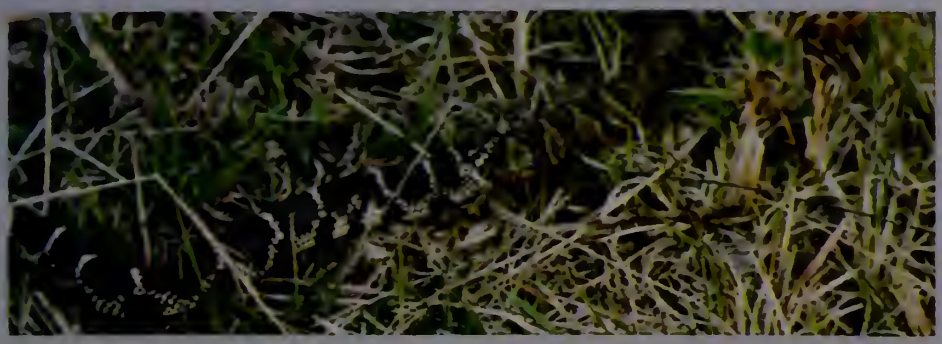
HELPFUL SNAKES

I had always heard that king and black snakes would kill other snakes, but I wasn't sure until I came across this Eastern king snake eating this Northern water snake. I understand they will kill poisonous snakes, also.

Ron Farr
Midlothian

Right, they are good to have around!—Editor

SNAKE EATS SNAKE!



Unlawful, but good, hunting — will I get caught?

Do Hunters Really Respect the Law?

For many there seems to be a thin line between obeying the game laws and furtively watching for the warden.

by Kirk H. Beattie

Having taken the chance, the violater is caught!

Laws and regulations restricting the time and methods of harvest of game animals have played an important role in the evolution of game management. The first game law in North America was enacted 300 years before the purposeful modification of game habitat by state game and fish agencies. The present-day importance of game laws and regulations is attested to by the fact that almost one-third of the operating budgets of state fish and wildlife agencies are expended on enforcement of wildlife (primarily game) and fisheries laws.

The success of game laws and regulations has been measured by monitoring changes in numbers of game animals, by measuring sportsmen's compliance with game laws, and by measuring sportsman's attitudes toward game laws and regulations. Attitudes of sportsmen toward game laws and regulations would seem to be important to a wildlife management agency because of presumed close ties between the attitudes of the clientele and related behaviors of interest to the agency.

Hunter attitudes toward a particular law or regulation may be related to their willingness to comply with the law or regulation. For example, several years ago the Colorado Division of Wildlife passed a regulation prohibiting the harvest of single-antlered bull elk for one hunting season. The intent of the law was to make more branch-antlered bulls available to sportsmen during the following year. However, reports of illegal harvest of single-antlered elk and results of post-season elk carcass surveys indicated the kill of single-antlered elk was probably near to what would have occurred had it been legal to harvest single-antlered elk. Sportsmen's attitudes toward this regulation undoubtedly played a major role in the repeal of the regulation prior to the following year's elk hunting season.

Previous researchers studying hunter attitudes have reported that hunters generally have favorable attitudes toward game laws and regulations, game law enforcement, and game wardens. To provide initial information on the attitudes of Virginia resident hunters toward game laws, game law enforcement, and related concepts, a mail questionnaire was sent to Virginia hunters in 1979.

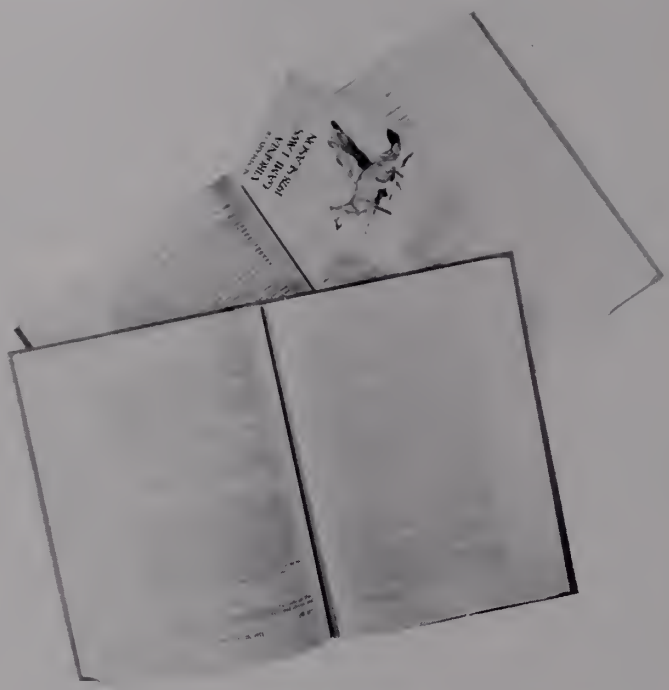
Usable responses were obtained from 40 percent of the 3,112 hunters to whom questionnaires were mailed. To determine if returned questionnaires were representative of the entire sample, 50 nonrespondents were telephoned and asked ten questions from the questionnaire. A comparison of answers of respondents and nonrespondents on the ten questions suggested that returned questionnaires were representative of the entire sample.

Attitudes of Virginia hunters toward game laws and regulations, sportsmanship in hunting, game law violations, game law enforcement, and Virginia game wardens were measured.

Almost one-half of the hunters had extremely favorable attitudes (meaning to support or approve of) toward game laws and regulations. Less than two percent held unfavorable attitudes, about four percent were neutral, and 96 percent had favorable attitudes toward game laws and regulations.

Attitudes toward sportsmanship in hunting, game law enforcement, and Virginia game wardens were generally favorable. Less than seven percent of hunters held unfavorable attitudes, about seven percent were neutral, and 86 percent had favorable attitudes toward sportsmanship in hunting. The proportion of hunters having favorable attitudes toward game law enforcement and Virginia game wardens was also high. About 95 of every 100 hunters had favorable attitudes toward game law enforcement and Virginia game wardens.

Based on the finding that 96 percent of Virginia hunters held favorable attitudes toward game laws and regulations, it would be expected that approximately the same percentage of hunters would be opposed to game law violations. However, a much lower percentage of hunters opposed game law violations than favored game laws and regulations. Although 96 percent of hunters favored game laws, only 51 percent opposed game law violations. About one of every 10 hunters was neutral and 37 percent favored game law violations. It is difficult to reconcile the large difference between the percentages of hunters supporting game laws and regulations and opposing game law violations. It is possible that a portion of the hunter sample misinterpreted directions for answering questions about game law violations, thus accounting



It appears that most Virginia hunters recognize the importance of game laws — and of their enforcement.

for some of the disparity in their responses.

In addition to measuring attitudes of hunters, relationships of hunter attitudes to socioeconomic (such as age, income, and occupation) and hunting-related questions were examined. It was thought that inspection of hunters by game wardens might lead to unfavorable, or less favorable, attitudes toward game laws because of perceptions of being "bothered" by game wardens. However, warden inspections were not related to attitudes toward game laws and regulations. The number of times a hunter was inspected by game wardens did not appear to influence his or her attitude toward game laws and regulations. However, hunter perceptions of being irritated by warden contact in 1977-78 were related to attitudes toward game laws. Of those persons reporting irritating warden contacts during the 1977-78 hunting seasons in Virginia, 48 percent had extremely favorable attitudes toward game laws and regulations. In contrast, among those persons not reporting irritating contacts, 86 percent had favorable attitudes toward game laws.

Hunters reporting irritating warden contacts in 1977-78 also had less favorable attitudes toward game law enforcement and Virginia game wardens. Almost one-half of the persons reporting being bothered by a 1977-78 warden contact had extremely favorable attitudes toward game law enforcement in contrast to 90 percent of persons not reporting being bothered by a warden contact. Approximately the same percentage difference occurred in attitudes toward Virginia game wardens.

A tendency was observed for attitudes toward game law enforcement and Virginia game wardens to become more unfavorable, or less favorable, as the number of reported irritating contacts and the number of game law violation citations increased. The number of times a hunter had been inspected by Virginia game wardens between 1975 and 1978 was not related to the hunter's attitude toward the five concepts. However, the number of reported irritating contacts with wardens was related to several of the attitudes.

Very few of the socioeconomic questions were related to attitudes toward game laws and regulations. The present size of the residence community of a hunter was related to the hunter's attitude toward game laws and regulations. A tendency was observed for attitudes toward game laws to become more favorable as the size of the residence community increased from rural to highly urban. Hunter age was also related to attitudes. Younger hunters had more favorable attitudes toward sportsmanship in hunting than older hunters but less favorable attitudes toward game laws and regulations, game law violations, game law enforcement, and Virginia game wardens.

Hunters were also asked the degree to which game laws and regulations affected satisfaction received from each of 36 hunting activities. Hunters reported that game laws and regulations were most helpful in attaining satisfaction from seeing wildlife and enjoying hunting as a sport. Game laws and regulations were reported to be least helpful in allowing hunters to achieve satisfaction by hunting from roads and shooting nongame animals (such as woodchucks) while hunting.

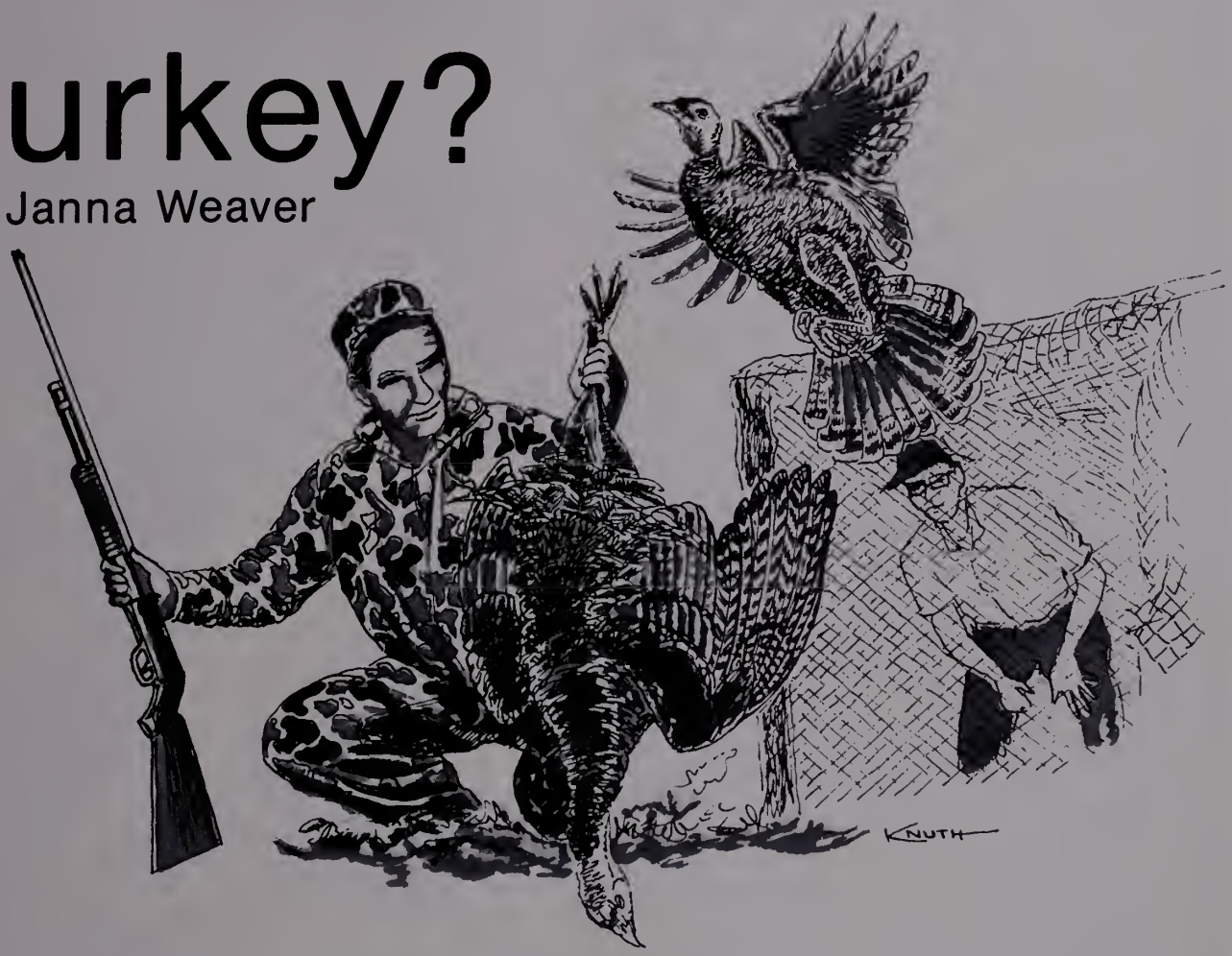
Hunters were asked about the truthfulness of 14 statements related to game laws and regulations. Hunters reported that the statement "game laws and regulations provide for good game management" was the most true and that "there are too many game laws and regulations" was least true. On the average, hunters were uncertain about the difficulty of remembering game laws and whether game laws were enforced adequately.

It is often assumed that game laws and regulations impose a hardship on hunters by being too difficult to remember, too difficult to interpret, too restrictive, and too numerous. Contrary to these commonly held beliefs of the wildlife management profession, Virginia hunters reported these beliefs were, on the average, more false than true.

In summary, a large majority of Virginia hunters held favorable attitudes toward game laws and regulations, sportsmanship in hunting, game law enforcement, and Virginia game wardens. Roughly one-half of Virginia hunters opposed game law violations. Perceptions of being bothered by warden contacts and the number of self-reported irritating warden contacts were related to less favorable attitudes toward game law enforcement and Virginia game wardens. Game laws and regulations were reported to be most helpful in allowing hunters to observe wildlife and least helpful in allowing hunters to shoot nongame wildlife (such as woodchucks). Commonly-assumed hardships imposed on hunters by the presence of game laws and regulations were not supported.

Have Regulations Saved the Wild Turkey?

by Janna Weaver



The wild turkey has always been an important bird in Virginia. In colonial times it served as a source of food to the settlers. Today, its status has changed to a highly prized big game species which, in the past few decades, has attracted an increasing number of hunting devotees. With increased hunting pressure, hunting regulations, and manipulating these man-made management practices, the turkey has received more public attention than any other single wild turkey game management tool. The influence of hunting regulations on wild turkey populations, however, has received little or no detailed examination. For this reason an investigation was begun in 1975 at VPI & SU, in cooperation with the Game Commission to assess the impact of various hunting regulations on Virginia's wild turkey population.

Changes in the status of the wild turkey in several sections of Virginia between 1930 and 1977 resulted in hunting regulation adjustments to deal with these shifts in status. Briefly, in the 1930's, Virginia's primary wild turkey habitat and populations were found in the central Piedmont, with a smaller and less thrifty population on the northwestern mountains and only a limited population in Tidewater. The turkey was gone from Southwestern Virginia by the 1920's. In the late 1920's and early 1930's, populations in the mountainous northwest were not thriving, as indicated by the fact that in 1940 the bag limit was 2 per day/2 per season in western Virginia as compared to 2 per day/4 per season east of the Blue Ridge. By 1950, the bag limit was 1 per day/1 per season west of the Blue Ridge and 1 per day/2 per season east of the Blue Ridge. In the ensuing 25 years, turkeys east of the Blue Ridge (including both the Piedmont and Tidewater Provinces) remained stable or declined whereas west of

the Blue Ridge, the wild turkey population increased dramatically. In the mid-1960's the turkey was restored under a highly successful trap-transplant program, to huntable numbers in most of southwestern Virginia. These shifts in distribution and abundance within the several regions of the state resulted in a number of changes in hunting regulations.

The status, kill and hunting regulations have varied widely during the 26-year period from 1951 through 1976 between the two major regions of Virginia, east of the Blue Ridge and west of the Blue Ridge. According to 1972 estimates by Virginia Game Biologists Joe Coggin and Charles Peery, the East Piedmont Game Range had 4313 square miles of occupied wild turkey habitat (57.3 percent of total area) and the Central Mountain Game Range contained 3816 square miles (75.9 percent of total area) of occupied turkey range.

In the fall of 1975, wild turkey populations were field surveyed and estimates made in the four western Virginia counties of Augusta, Bath, Giles, and Montgomery. From these estimates and subsequent kill records, it was found that about 17.2 percent of the 1975 fall population of wild turkeys was removed during both the fall any-sex and the following spring gobbler season. Approximately 14.0 percent of the turkey population was removed during the fall season and 3.2 percent was harvested the following spring. Other information revealed by the study indicated that about 16.8 percent of the estimated adult gobbler segment of the population was removed during the spring 1976 hunting season.

Many turkey researchers suggest that a 20 percent annual harvest removed from a healthy wild turkey population can be sustained without detriment.

Serious concern about the decline in the wild turkey population east of the Blue Ridge resulted in restricting the fall hunting to bearded male turkeys only in 1968. This drastic change in the east of the Blue Ridge turkey hunting regulations did reduce the legal harvest to less than 5 percent of the estimated fall population in the East Piedmont Game Range. However, there is no evidence that the turkey population in this game range responded favorably to this regulation, in fact, the estimated population decreased about 18 percent between 1963 and 1976. On the other hand, the turkey have increased in the Central Mountains Game Range, even with any-sex fall, plus bearded-only spring seasons that removed less than 20 percent of the fall population in four western counties.

A healthy turkey population the length of the fall season does not appear to be directly correlated with the size of the annual harvest. Similarly, daily and seasonal bag limits did not appear to influence directly the total fall harvest.

In the East Piedmont Range, changing the type of season from any-sex to bearded-only turkeys did result in a reduction of the fall harvest by almost 2/3. This seems logical in that the legal take under the gobbler-only restriction confined the legal segment of the turkey population to the approximately 20 percent of the fall population made up of adult gobblers, or about 50 percent of the total fall population if both adults (20%) and juvenile toms (30%) are included. In this game range, the annual kill continued to decline, as did the estimated population under reduced season length and increased bag limit.

Our examination of the 26-year wild turkey hunting regulation-hunting harvest data in Virginia leads to the following generalizations:

—A thrifty, self-sustaining wild turkey population can tolerate a 20 percent or more annual harvest and, within reasonable limits, length of season and reasonable daily/seasonal bag limits have little influence on an expanding turkey population.

—Restricting the fall hunting to gobbler-only (bearded birds) did reduce the average annual kill about 2/3 in the East Piedmont Game Range. This reduction in the fall harvest however, did not result in an increase in the wild turkey population in this area.

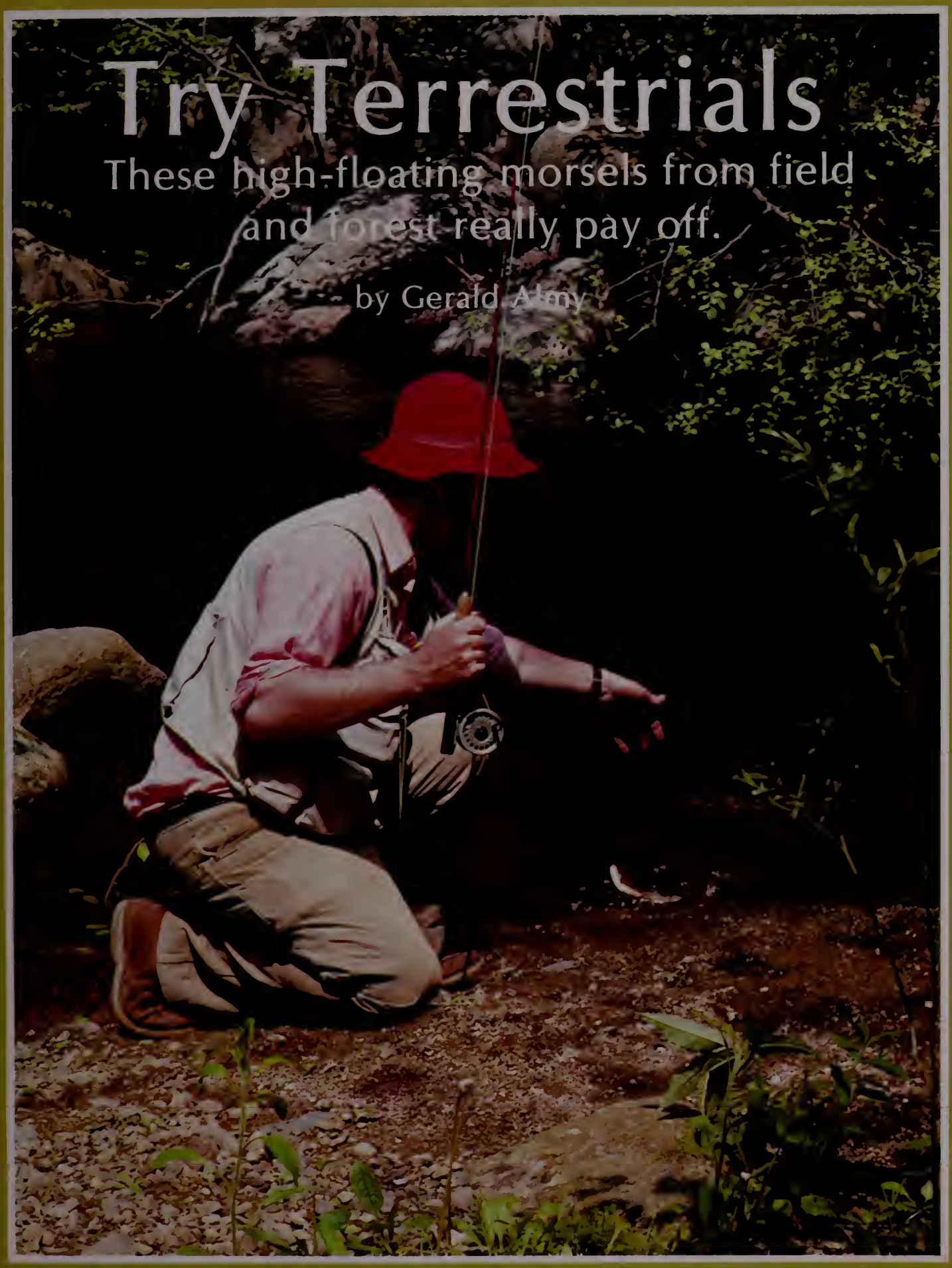
—Spring gobbler seasons have little or no adverse influence on wild turkey populations.

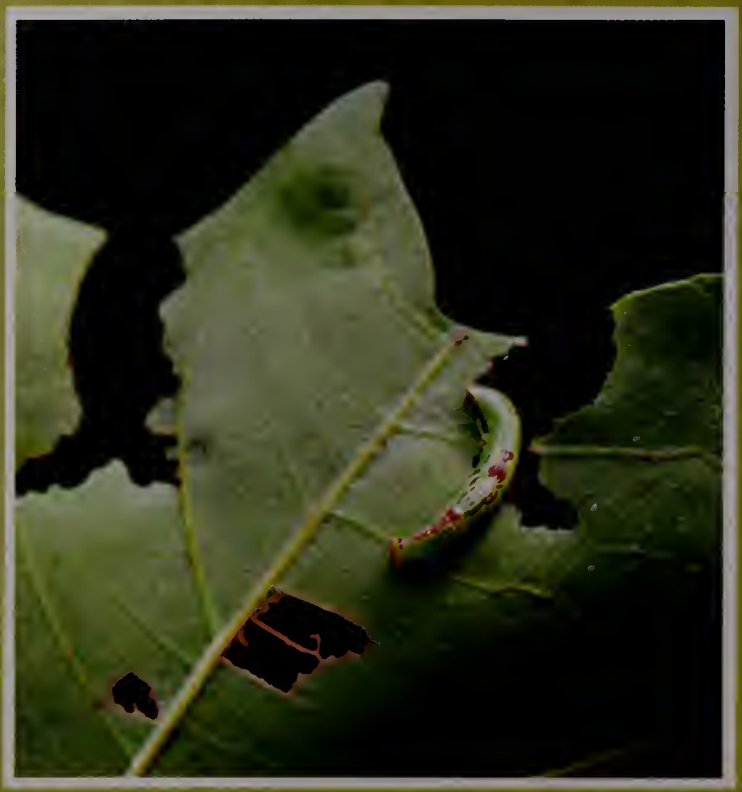
—As a very broad generalization, this investigation suggests that changes in the type of season, length of season, and daily/season bag limits seldom have the direct and immediate influence on Virginia's turkey population as is generally assumed.

Try Terrestrials

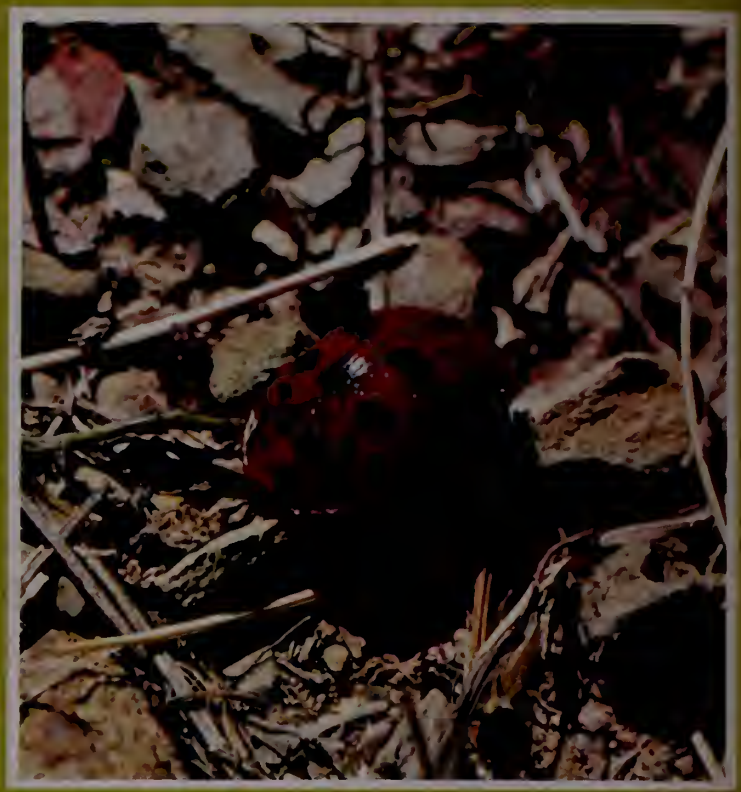
These high-floating morsels from field and forest really pay off.

by Gerald Almy





Lepidoptera larva — the caterpillar. A favorite trout food.



The beetle — member of order Coleoptera

The summer trout stream flows with a softness and quietude that belies the latent struggle for life unfolding beneath its surface. The banks rich with moss and weeds carry no footprints from troops of anglers. The cackling currents of spring have given way to a barely-perceptible murmur. The aquatic insect life that kept the April surface abuzz with fluttering wings, as mayflies and caddis launched themselves into the brisk air, has all but ceased. The freshly-planted trout that delighted spin fishermen in spring have dwindled to a meagre hearty few — "wild" fish now in that they have adapted to the ways of a natural stream. They can only be fooled with realistic imitations of their natural foods and careful, planned deliveries of the offerings.

But what natural foods are there for the stream-conditioned browns, rainbows, and brookies? There are some nymphs and caddis larvae to be garnered by industrious fish that nudge the rocks and bottom weeds with their hard snouts. Black-nosed dace and sculpins will occasionally fill a belly for the fast, stabbing summer fish. But it is the terrestrials — those insects born and bred on land — that become the principal food form for most of the inhabitants of coldwater streams during warm months of June, July, August, and September.

It is mainly in the past few decades that terrestrials have gained the stature they deserve in the fly fisher's world. The most important stimulus to this development was the reissue in 1970 of Vince Marinaro's classic book, *A Modern Dry Fly Code*, by Crown publishers. Marinaro's work, along with that of Charlie Fox and a handful of other Cumberland Valley innovators, paved the way for the ascension of terrestrials onto the pedestal formerly occupied only by the beloved mayfly.

Terrestrials have been present in the background of trout fishing literature almost from its beginnings, however. Cotton mentions several moth, ant, and grasshopper patterns in *The Compleat Angler*. Alfred Ronalds gave the insects a prominent position in his superb work, *The Fly-fisher's Entomology* (1836), discussing such insects as caterpillars, leafhoppers, lacewings, ants, beetles, flies, and bees.

But it's only recently that land insect flies have gained widespread popularity and acceptance among dry fly fishermen. Today, the terrestrials are on the verge of surpassing the aquatic insects as the most important natural foods for the fly angler to imitate over the course of a season.

Where the aquatic insects come on "hot and heavy" for a month or so each spring, the terrestrials dribble into trout streams from spring through fall, offering a full season of dry fly fishing opportunities. Where trout require a fairly heavy hatch of mayflies before they begin feeding on these food forms, the terrestrials are snatched up randomly, as they fall pell-mell into the stream.

Perhaps most significant of all is the fact that while populations of the fragile mayfly are declining on many coldwater streams, terrestrial insect numbers are burgeoning. Over three-quarters of a million species of land insects have been identified; over 300,000 different beetles alone exist.

The land insects, as a rule, are hearty critters, immune to many of the degradations inflicted on our environment. As years pass, they are destined to mount in importance for both the trout and the fly fisherman.

There are some purists who may balk at the suggestion that a beetle is a more potent trout-taker than a delicate-winged mayfly pattern. To these one can only

Boxelder bugs are members of the order Hemiptera...the true bug. Fish feed well on them.

Short horn grasshopper. (order Orthoptera.)

quote the renowned A.J. McClane, from the collection of his works titled *Fishing With McClane:*

> *"Normally, the air will be full of insects, mayflies and caddis flies, beetles, grasshoppers, crickets, and whatnot. What rules of priority makes the mayfly more important than the beetle, or the caddis more charming than the cricket? If you examine a trout's stomach it will be evident that whatever the air is full of the trout is full of. Fish are like vacuum cleaners working on a stone floor and a liquid ceiling."*

Due to its renaissance on the limestone streams of southern Pennsylvania, many anglers mistakenly associate terrestrial fishing strictly with the meadow waters of this area. Actually, terrestrial insects are eaten by trout in every type of coldwater habitat — from brawling western rivers to tiny mountain brooks bordered by fir and pine. In fact, on many of the rocky, acetic freestone streams the land insects constitute a more important source of food to trout than they do on the limestone streams, which are rich in aquatic insect fare such as scuds, shrimp, and sow bugs.

Fishing the terrestrials is a fascinating game, because it is played out entirely on the surface where the angler sees everything. All land insects float remarkably well. Several ants and beetles that I placed in a basin of water as an experiment were still drifting on the surface five days later!

Insects float so well for several reasons. First, there are air pockets dispersed throughout the body that help them to bob up to the surface. Secondly, the insects have a double layer of waxes and thin, varnish-like cement over their outer skin (cuticle). The main purpose of this coating is to keep them from dehydrating, but it also effectively "waterproofs" the insects, making them float like a cork when they enter the trout stream. For the dry fly angler, this comes as heartening news.

With the combination of floating flies and low, crystalline waters, fishing the land insects becomes a highly visual sport. Often you will watch, petrified with jittering nerves, as a big brown swims out from under a gray boulder to inspect your ant or beetle before snatching it with a lunge.

Finely-tapered leaders are usually necessary to avoid spooking the skittish trout of summer. But contrary to what one might expect, a soft, gentle delivery of the offering is not always best. Sound, in fact, becomes a major feeding-sense for trout when terrestrials are on the menu.

Since these insects spend no part of their natural lives in the water, it is accidentally — and usually with a distinct splat — that they tumble into streams. Fish are tuned to this audible entrance and speed to such noises like a cat pouncing on prey. Dropping your imitation with just the tiniest "plop" will often elicit savage strikes from hungry trout when terrestrials abound.

Tackle for fishing the land insect imitations need not be elaborate. A rod of seven to nine feet taking a four to six weight forward floating line is an excellent choice. Add a leader of eight to twelve feet and a few spools of 5X, 6X, and 7X tippet material and you're set for action.

There are many terrestrial patterns in existence, though only a few of them are readily available from the commercial outlets. A good basic selection would include the Letort Hopper (10-16), Letort Cricket (10-12), Crowe Bettle (10-16), Jassid (18-24), and black and cinnamon fur ants (14-24).

SNAKEBITE!

by John Traister

Could you save your dog in this emergency?

Bitten in the face, this dog desperately needs his owner's assistance.

Snakebite is not a very common outdoor catastrophe for humans, but for pets (especially dogs) snakebite is quite common if the pets are allowed to wander freely in areas inhabited by poisonous snakes. Dogs will become curious over any new animal or object in the outdoors and most just can't resist poking their nose a little closer to investigate that rattling sound coming from that pile of scaly flesh.

My own English setter was bitten by either a copperhead or rattlesnake in August of 1976 near our country home in the foothills of the Blue Ridge Mountains. He came back to the house with two punctures close to his nose and his left lip was swollen to about four times its normal size. Upon examining him closer, I saw that a lump had developed in his throat that made it difficult for him to swallow. His actions and frequent whining told me that the dog was in terrible pain and needed treatment.

Ice packs made from plastic bread wrappers stuffed with crushed ice were applied to the wound and on the surrounding areas for 20-minute intervals, with five to 10 minute breaks. The third time that I applied the ice to the wound, there was a definite reduction in the swelling, and the dog seemed to be in less pain. The following morning the swelling was almost gone and the dog began eating normally. By noon of the same day, he became his playful self again and was apparently in little or no pain.

Dogs will normally have little difficulty with poisonous snakebites — except for the misery — and most will be back to normal within 24 hours. However, you should still keep them under close observation and consult a veterinarian if their condition doesn't improve in about four hours . . . an antivenom shot may become necessary.

Veterinarians tend to disagree on the best treatment for snakebite, but nearly all of them will concede that ice packs on the bite will relieve pain, keep the swelling down, and perhaps retard the rate at which the poison enters the skin. The wound should never be cut to induce bleeding as such a cut can cause a large loss of blood and may in itself do more damage than the bite.

When in the field away from a refrigerator with plenty of ice cubes, a snakebite kit called Snakebite Freeze is availabe for around $12. This kit produces "ice" packs with chemicals. The manufacturer recommends that the wound not be elevated as this spreads the poison faster; nor should the wound be cut.

While the Snakebite Freeze kit can lessen your dog's misery from snakebite when away from a source of ice, it is recommended that regular ice cubes be used if they are available. Dr. Gene Martin of Luray believes that the chemical packs produce too low temperatures that can freeze the skin tissue. Therefore, when the chemical packs are used, keep a close watch on the wound and surrounding areas so as not to make the area too cold.

Some dogs react better to snakebites than others; or perhaps it depends upon the amount of venom injected into the dog. Recently, my daughter's pet dog Brownie came in from a walk in the field in back of our house. There were two punctures on his nose and his head was swollen as shown in the accompanying photos. After applying ice packs for about one hour, the dog was back eating and the swelling was almost gone in only a few hours. A shepherd dog belonging to a friend of mine was bitten in the face by a timber rattler in the Shenandoah National Park and hid under the crawl space of my house for three days. As far as I know, he never came out during this three-day period. When the dog finally emerged, the swelling was just about gone, but the dog was very weak and obviously had been rather sick during this time. It was a week before the dog fully recovered.

It is a hard matter, indeed, to prevent dogs from becoming snakebitten when they are allowed to run in snake country, but some of my observations over the past ten or fifteen years may be of help. For example, in the past ten years I have owned approximately seven or eight different dogs. Most of them have been bitten by a poisonous snake once during their life. None of them have had the catastrophe occur more than one time. This leads to the conclusion that they remember the first instance and avoid any thing that resembles a snake (poisonous or not) in the future.

Further evidence to support this belief occurred when my English pointer was about nine months old. He found a coiled nonpoisonous black snake along the edge of my garden. Knowing that the snake would not harm the dog seriously, I let the pup investigate further. As the pup leaned forward to smell the snake, he struck, hitting the pup squarely on the side of the head. I noticed that the bite was bleeding as the dog shot past me at high speed. It must have been a distance of at least 200 yards before the dog stopped.

The curious thing about this incident is that this particular dog was never bitten by a poisonous snake. He apparently had learned from the black snake incident that these creatures are meant to be left alone.

Few snakes are capable of causing fatalities to dogs, but they certainly are capable of making your dog miserable. In order to completely assure yourself and your dog of a safe stay in the out-of-doors, know the remedies and have the necessary items close at hand.

Pel, the Chimney Swift

by Carsten Ahrens

Pel, the chimney swift, was hatched in a semicircular nest glued inside the main chimney of our old farmhouse that summer. The house had been built in the 1840's and had four chimneys that rarely produced smoke in summer when the swifts were about. Seven pairs of birds nested in them. Three pairs shared Pel's chimney for it was a mighty shaft that led down three floors to a fireplace big enough to hold a yule log, in what was now the parlor but once was the kitchen of the old house.

Pel's parents were sooty black above and dark gray below, and whitish at the throat. In many birds, male and female are differently colored, but the swifts looked just alike. Each was about five inches long, and their long, slender, curving wings were always partly extended when in flight. As they careen about the sky, they never partly close their wings as swallows and nighthawks do. Their movement is remarkable for the wingbeat, like that of bats, is slightly askew. The wings don't beat exactly together, nor does one alternate with the other; the action is somewhere in between. The tail is too short to act as a rudder, so the wings take on that function. It works so beautifully that few birds have the speed of swifts, which are rightly named. As they fly, they produce loud and constant chittering sounds. Were their eyesight not as sharp, one might wonder if they had a built-in sonar system like bats.

No nest could have been more curious than the one in which Pel found himself. It was built of dead twigs his parents had grabbed and broken off in flight. The birds brought them down the chimney and then, with the abundant saliva the glands in the mouth produce at nesting time, they cemented the first twigs to the bricks and later ones to each other. The result was rather saucer-like. Pel was related to scores of species of swifts

Illustration by Michael Rice

around the world; one, a larger one, is the black swift of our far west. All of them possess saliva that has the adhesive quality so necessary in their housekeeping. Some, from southeast Asia, make a twigless nest entirely of saliva which hardens quickly. The natives gather these nests and melt them to form a much prized soup. Soup from edible bird nests!

When the nest was dry and firm, Pel's mother laid five longish, white eggs in it. Nesting time for swifts takes most of the summer so there is only one brood. The eggs were laid in June and the birds kept them warm in the drafty chimney for the rest of the month until they hatched. But almost twice that length of time went by before the little birds decided to fly. The nest was small and as the young birds grew, they were so crowded that they learned to cling with their sharp claws to the mortar that had oozed between the bricks and to prop themselves up in woodpecker fashion by their short tails.

Both parents fed the young by regurgitation. Swifts, like swallows, live entirely on insects which they catch in flight. They have tiny beaks but generous mouths which they open wide as they swoop through the air to scoop up flying insects. When Pel was fed, the food was already partially digested for him.

Probably there is no bird more aerial than the swift. It never perches on the ground, on buildings, or in trees. Except for constructing the nest covering the eggs and feeding the young, the bird spends every daylight hour in the air. If the day is fair, the swifts are high in the sky, usually beyond man's vision. Only on a rainy, overcast day do they approach the earth, and at dusk they return to the vicinity of their chimney where they spend the night. They fly so fast through the chimney opening that it is something of a miracle how they apply the brakes to stop them at their roosting site. Here they cling, propped by their tails through the night.

Pel's brothers and sisters spent a long time in the shelf-like nest, and they stayed on, crowded as it was. They seemed to sense when their wings were ready to lift them out of the narrow brick corridor and into the sky. Pel was left behind. He seemed to realize there would be no second chance should he fall to a flat surface. His wings were too long to take off from such a site. He was fullgrown yet lingered on the nest.

But one unusually cool day in late August down in the parlor, someone started a fire in the big fireplace. The warm smoke that ascended reached Pel and he successfully left the old nest to make his way towards the little spot of sky the opening in the chimney showed. And none too soon — the heat from the blaze rose up the shaft, melted the nest cemented together by the adhesive saliva of his parents, and the structure fell to produce a brief, bright flame in the fire below.

When the chimney swifts return from their winter sojourn in South America, they spread out over the United States, from the east to the west, as far as the Rockies, and from the Gulf of Mexico through Southern Canada. Now, in early September, most birds weren't considering as yet migration, but Pel and the other swifts from the four chimneys began the long trek southward.

So the little colony traveled southward, feeding on the still abundant insects, sometimes leisurely, sometimes hurriedly, in order to reach each evening resting spot, well-known to the older birds. Sometimes these were chimneys, hollow trees, abandoned buildings, occasionally cliffs and caves. But to Pel and his kind, feeding, nesting, and sleeping seem necessary but incidental; to them, living is flying and flying and flying!

Saltmarsh Ecology

Part Four

Plants of the Saltmarsh

by Curtis J. Badger

A variety of insect life abounds in the saltmarsh. (right) Black needle rush, Salt meadow hay and groundsel tree thrive in the harsh conditions found in Virginia's saltmarshes. (lower right)

The variety of plants which populate a saltmarsh is very small, but without grasses such as the thick, dominant Spartinas the marsh could not exist. Not only are the Spartinas the basis for the saltmarsh food chain, but they also literally hold the marsh together, their thick roots bonding together the tenuous mud.

Although the number of plant species in the marsh are few, all the plants have their own specialized roles to play, and the types of plants found in the marsh define certain areas of the saltmarsh. Some of the marsh plants are inundated by saltwater as much as twelve hours a day. Others grow in higher areas of the marsh where saltwater reaches them only at extreme high tides. Still others are out of the reach of the tides, although they are frequently buffeted by saltwater carried by the winds. In this manner the types of plants indicate topographical variances in the marsh.

For instance, *Spartina alterniflora* is found only in the lower regions of the marsh. It thrives along creek banks where its roots and lower stems are bathed in saltwater for hours at a time. Very few plants can withstand such a harsh environment, but Spartina has evolved special mechanisms which allow it to thrive in its salty home.

Most plants would die if they were introduced to a saltwater habitat, not necessarily because the salt would kill them, but because they would die of water loss through osmosis. The cells of plants must be wet in order to function, but there must also be a balance of concentration of disolved and suspended materials in the water throughout the plant. If a solution on one side of a membrane is more concentrated than the solution on the other side, water will move through the membrane toward the more concentrated solution in an attempt to create a balance. This process is called osmosis.

If a land plant were introduced to a saltwater environment, it would soon wither because the water would be drawn out of the plant by the seawater, which has a high concentration of sodium chloride and other salts. *Spartina alterniflora* has conquered this problem by maintaining a higher concentration of salt within the plant than the concentration of the seawater that surrounds it.

But not all of the salt contained in the seawater enters the Spartina. Spartina, like all higher land plants, pulls in water through its roots to replace water loss by evaporation during photosynthesis. Spartina, however, has developed a membrane on its roots which removes most of the salt from the water entering the plant. The plant also has special glands along the leaves which discard salt through tiny pores. At low tide small concentrations of salt crystals can often be seen glistening in the sunlight on the Spartina leaves.

Spartina, which can grow to a height of six feet, is the most abundant plant in the saltmarsh, and it is the most important. In the fall the slender leaves turn golden brown, signaling a decaying process which is the basis for the saltmarsh, and it is the most important. In the fall the slender leaves turn golden brown, signaling a decaying process which is the basis for the saltmarsh food chain. The Spartina leaves are attached by bacteria and broken down to form a nutrient-rich soup called detritus. The detritus feeds most of the small marine animals and fish in the marsh, which in turn feed larger animals and fish farther up the food chain.

A close relative of *Spartina alterniflora* is *Spartina patens*, often called saltmeadow hay. *S. patens* is a small fine grass which grows in slightly higher elevations than *S. alterniflora* where it is reached by water only at extremely high tides. The leaves are slender but grow closely together, reaching a maximum length of two feet. *S. patens* has fine stems with weak areas near their bases, causing the grass to flatten in thick swirls resembling cowlicks. Since the grass grows above the normal high tide mark, the decaying stems from last year's growth are not swept away with the tides as are the stems of *S. alterniflora*. New growth usually emerges through the decaying leaves of older grass, which forms a thick carpet over the ground, shielding it from sunlight and keeping it moist year round. In some areas *S. patnes* is harvested and used as forage for cattle.

opposite sides of the stem. In winter the leaves of *S. patens* turn ash grey, while the *D. spicata* leaves are straw colored.

One of the strangest plants along the tidal regions of the saltmarsh is Salicornia, a tubular, slightly translucent plant known locally as saltwort or glasswort. Salicornia is essentially a leafless plant which has thick, fleshy stems which can be pickled and preserved.

There are three types of Salicornia in Virginia's coastal marshes: *Salicornia virginica*, *Salicornia bigelovii*, and *Salicornia europaea*. The former is a perennial, while the latter two are annuals. All have fleshy green stems which resemble a series of tubes or cells attached end to end. The *S. europaea* variety adds a touch of color to the marsh in the fall when the stems turn bright red.

Another plant which adds a touch of color to the saltmarsh is the sea oxeye, a small shrub with thick green leaves and yellow flowers. The sea oxeye grows in the higher regions of the marsh, usually among stands of *S. patens* and larger shrubs such as marsh elder, which marks the separation between marsh and high land. Sea oxeye ranges from Virginia southward along the coast to Florida and along the Gulf of Mexico. The plants are very hardy, usually growing in colonies propagated by thick underground root systems called rhizomes. The plants light up the marsh in the spring and summer with their striking yellow flowers, which become brown, burr-like seed heads in the fall and winter.

Plants such as the oxeye and marsh elder form something of a botanical border dividing the saltmarsh from the upland. On the upland side of marsh elder grow evergreens such as cedars and wax myrtles and the deciduous groundsel tree. Groundsel tree, a tall shrub, and the smaller marsh elder often provide sites for heronries in the upper levels of large expanses of marsh.

Cedars and wax myrtles probably are more closely associated with upland plants, although they can withstand some encroachment from saltwater. The leaves of the shrubs are often bathed in saltwater during storms, when strong winds carry moisture heavily laden with salt from the creeks and bays. High tides can periodically inundate the shrubs also, but unless the exposure is prolonged, they can withstand the saltwater bath without damage.

There are many other plants, such as reed grass, bulrush, cattails, and waterhemp, which thrive in the brackish waters of the upper regions of tidal creeks and rivers. These are not normally associated with the saltmarshes, however. The plant variety in the saltmarsh is severely limited, and through a process of natural selection, only a few plants have become adapted to the harsh saline environment. As you travel from the saltmarsh to the upper reaches of creeks, where the salt concentration becomes less, a greater variety of plant life begins to appear.

The saltmarsh is a hostile environment for most plants, but those which thrive there, from the tall Spartina grass to the microscopic bits of algae, hold the key to life and death in the marsh. Without them there would be no saltmarsh.

Glasswort (Salicornia) (above), Sea oxeye (inset) and alterniflora (below) are all found in the saltmarsh.

The saltmarsh is unique environment and the plants found there are equally unique.

Combination for Summer Bass:

Cast-Troll-Crank

by James R. Donald

Slimmer floating-diving lures especially effective for catching summer bass with cast-troll-crank technique. Lure size determines the depth, left to right; 1/4 ounce, 6 to 7 ft.; 3/8 ounce, 8 to 9 ft.; 1/2 ounce, 10 to 15 ft.

Satisfied angler admires 7¼ pound bass that yielded to the unusual approach.

Casting and trolling are very old and reliable ways to catch largemouth bass. More recently, a very effective technique has been one of casting and "cranking" or reeling the lure back in at a very rapid rate.

Now comes a combination of these three methods that I find more effective at times than the use of one alone. The technique of casting, trolling and cranking is especially productive for summer bass when the fish are resting in deeper and cooler water, yet ready to charge a fast-moving artificial.

My "discovery" of the technique last summer didn't come easily. "Get the net, it's a good one," I shouted to Nancy, my wife and fishing companion, sitting not more than four feet away. The largemouth bass proved to be just under five pounds — not as big as I had thought but a most welcome sight on an otherwise catchless day.

It had been a frustrating day of casting and trolling. By mid-afternoon of the cloudless late-August day, the air temperature had soared to 96 degrees and the surface water was a dishwater-warm 85 degrees.

We had begun the day at dawn, casting topwater lures and plastic worms to weeds, brush and tree stumps along the shoreline of the Commission's Burke Lake in Northern Virginia. But there was no interest in our offerings. The sun's climbing over the treetops meant most early-morning fish feeding in the shallows would head toward the comfort and protection of deeper water and we should, too. I figured that trolling floating, deep-diving lures would be the quickest way to find the bass — but the technique didn't prove effective.

Hot and tired after some eight hours of fishing, Nancy and I mapped our strategy — mainly to call it a day — but with one condition: that we make just a few more trolling passes along an underway ridge close to deep water — and near the boat launching site.

The first two trolling passes were fishless. On the third pass, Nancy's slowly trolled bottom-bumping lure finally met solid resistance along the stump-studded ridge — too solid, since the stump refused to budge, quickly dashing rekindled hopes. With time and patience running out, plus the need to unsnag Nancy's lure, I turned the boat and rapidly reeled in my lure. But not for long — I too met firm resistance — at last, the day's first bass. As Nancy waited patiently, I measured the length and weighed the five pounder,

then quickly released the fish to fight another day. Now that we had found the bass, there were surely more in the vicinity. But further trolling and casting of plastic worms stirred no interest.

At the time, I did not connect the depth and speed of the lure's retrieve with catching the largemouth. That connection was to come later when I would realize that trolling alone wasn't getting either the depth or speed needed; while casting the plastic worm was giving sufficient depth, the fish were not enticed by the slow-moving worm.

Following each fishing trip, I write detailed notes of the experience, including water and air temperature, wind direction and velocity, barometric reading, cloud cover or lack of, number and size of fish caught, depth and lures used. I finish these notes with a final comment about the trip. If fish were caught, I try to figure out why. If the day was fishless, I work even harder thinking through what went wrong and how corrections can be made next time out.

That particular night, explaining the five pounder wasn't easy. I finally decided it was that one "crazy" fish my Dad says you can always catch. But a week later, an almost identical experience convinced me the two fish must have been crazy for a common reason — further deep thought was a necessity that Saturday night.

From past experience, I knew two things were of prime importance in largemouth bass fishing: speed of retrieve and running depth of lure. Here at least I had a clue, since both fish were caught at 12 feet. It looked as if I needed to concentrate on lure speed, along with getting the lure to run at 12 feet.

Achieving more speed was the difficult problem that would have to be overcome. Too, increasing the speed should take care of the depth problem since my floating-diving lures run deeper with greater speed. My gasoline motor would be the easy way, though not the solution, since Virginia's Commission of Game and Inland Fisheries strictly prohibits such motors in its well-managed lakes — really a prohibition against pollution from noise, oil and gasoline, with which I fully agree.

Then, it hit me! Following the second fish, my diary that night advised for the next fishing trip: cast, troll and crank.

Here is the way I cast-troll-crank for largemouth bass. I start the electric trolling motor and cast as far as possible behind the moving boat. Leaving the reel in free spool, I let out additional line to a total of some 50 yards. Then, the reel is re-engaged, which tightens the line and brings the lure to trolling depth in a few seconds. I continue trolling until the lure is near a known spot to be fished, or in unknown waters, shortly after a likely spot shows up on the depth finder's screen. Then, the boat is turned to the left, broadside to the lure's direction, and the motor turned off. I quickly start cranking the reel as fast as possible. This gets the lure down even further than possible with casting — to "running" depth — and with speed enough to entice bass strikes.

I find the technique works best in the summer or when the water is 68 degrees or more at depths of 10 to 15 feet. This is the time when bass metabolism is the highest and the fish are the most active and most willing to strike a fast-moving lure.

Bass strikes nearly always come when the lure is bumping the bottom or some bottom structure, such as the tops of underwater stumps or brushpiles, tips of underwater land points near dropoffs, and standing trees near channels or deeper water. Practice is needed in letting out a sufficient amount of line and in positioning the boat to ensure the lure bumps and bounces off the structure to be fished.

Electric fishing motor trolling speeds up the fish-finding process and the motor is convenient to have for letting out line, but by no means a necessity if one is good with the oars or paddles. Neither is a depth finder a necessity, but I find it helpful in finding underwater structure in unknown waters. A topographical map, showing contour lines of the bottom, can also be helpful if available. Maps help in locating bars or land points that drop off sharply into deep water, in finding old creek-river channels, and in finding islands or humps surrounded by deep water.

I prefer a fairly stiff 5- to 5½-foot rod for "feel" and hook-setting purposes. I find the slimmer floating-diving lures work better than the fatter ones, being easier to reel due to less resistance to the water and its tight vibration that attracts strikes. Size of lure and line depends on the depth to be fished. One-fourth ounce lures and line testing 10 to 12 pounds work well together for depths of 8 or 9 feet. For 10 to 15 foot depths, I prefer one-half ounce lures and 14 to 17 pound test line.

Bait casting, spinning and spin-cast reels can all be used effectively. The type reel used is not nearly so important as the reel's retrieve ratio. Reel gears that give a 4.7:1 or faster retrieve ratio permit greater speed and depth than possible with slower reels.

While the technique works best in warmer water, I have found it's often effective in the spring and fall. Keep in mind that lure speed and depth control are keys to catching fish any time of the year. And some days, even in 50-degree water in late fall, I've found that bass will strike a fast-moving lure.

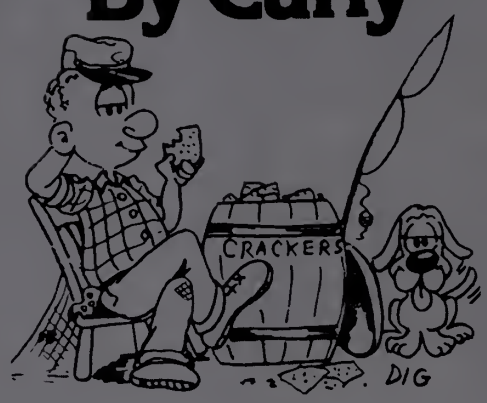
The same is true in the spring, a time when fish are moving toward shallow water spawning grounds. Since the fish are not as deep, it is possible to cast and retrieve rapidly and bump the bottom without using the motor to let out additional line. But even in the spring and fall, I continue to cast-troll-crank the deeper water, allowing me to search the water through speed and depth control — and most importantly to find and catch bass.

I'm not suggesting that you discard plastic worms, spinner baits and the like. They can attain depths and get to places not possible with floating-diving lures. Also, bass may strike a lure that's barely moving or even not moving at all — a bass striking a perfectly still top-water lure is a good example.

Still, bass often will strike a fast-moving lure while ignoring a slower moving one. Why this is so remains unanswered. Given the predatory nature, I suspect it is a "reflex" action caused by anger, fear or curiosity, rather than hunger — but there is little time for the bass to reject it as being "artificial."

It Appears To Me

By Curly



. . . A PERSON OUGHT TO HAVE ONE

One of our readers, a Mrs. A. B. from Cleveland, Ohio, tells me that she is fond of food and wants to know more about it from the standpoint of nutrition. Being somewhat certain that she is not the only one in that category, I am pleased to tell you that our Uncle Samuel has gone and done something about that very thing. For example, a body can get for free a number of booklets on food and nutrition, including, but not limited to, the following: "The Confusing World of Health Foods," No. 548G, "Your Money's Worth in Foods," No. 554G, "Food Shopper Language," No. 551G or "Read The Label, Set a Better Table," No. 553G. Just send your request with your name, address and zip code, listing the desired booklets to Consumer Information Center, Pueblo, Colorado 81009.

For you anglers that are interested in boating a trophy-sized bass, the good folks down at the Tennessee Valley Authority have recently published a brochure which I am certain will please you. "Fishing In The Wilson Dam Tailwater" is full of tips about where trophy fish are located and how they are best caught in those waters. The area is in the State of Alabama where the Quadcities of Muscle Shoals, Florence, Sheffield and Tuscumbia come together to form the tailwater. Bass aren't the only fish to be found there. Also available are sauger, catfish and crappie. If you are interested, get the brochure free from TVA, Program Support & Information Services, Norris, Tennessee 37828.

Another service of the TVA isn't completely free, but due to the attractive nature of it, I reckon you would want to know about it . . . especially if you qualify. Campers who are 62 years of age or older can get a 50% discount off the charge to camp in recreation areas in the Tennessee Valley Authority if they have a Golden Age Passport. To obtain one, the applicant must be a citizen or a permanent resident of the United States and must apply in person at a location where the fees are charged. This Golden Age Passport is also valid at or on recreation lands which are managed by all other Federal agencies.

The Department of the Interior's U.S. Fish and Wildlife Service recently published a free color brochure aimed at assisting small landowners who have leased their lands for surface mining and wish to reclaim the land for the benefit of fish and wildlife. Entitled "Mined Land Reclamation for Fish and Wildlife in the Eastern United States," the 14-pager utilized simple diagrams, photos and artwork to explain the various aspects of wildlife management. Single copies are available at no charge from U.S. Fish and Wildlife Service's Eastern Energy and Land Use Team, Harpers Ferry Center, Harpers Ferry, West Virginia 25425. Organizations or individuals interested in obtaining bulk copies may purchase them at $.90 each from the Superintendent of Documents, U.S. Government Printing Office, Washington D.C. 20402 (Stock No. 024-010-00498-3).

. . . FOR YOUR BOOK SHELF

Sometimes I have the feeling deep down in my stomach that we as a nation are kidding ourselves about a whole passel of things. One of those things is how we spend our recreational time, where we do it, and I reckon more importantly, how we recreate and the rationale behind it. This leads me to tell you about a recent publication commissioned by the Council On Environmental Quality, which deals with the impact of Off-Road Vehicles on our world. Nine months of research, interviews (from both sides of the fence) and countless field investigations have gone into this report by independent consultant David Sheridan, as a result of his study of the ORV problem. In the preface to this publication, Charles Warren, Chairman of the C.E.Q., sets the scene immediately by stating, "Off-road vehicles are an extremely touchy issue. In fact, of the several issues which arise out of public land use decisions — grazing, surface mining, water diversion, forest cutting and wilderness designation — none, in this author's experience, is as volatile as off-road vehicles." For what it is worth, I recommend that if you or your organization really want to become informed about this issue, it is high time you spend the $2.50 it costs. "Off-Road Vehicles on Public Land" is identified by Stock Number 041-011-00041-6. The 84-pager is available from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402.

. . . AND THEN

Marjorie Holmes said it in her book *As Tall As My Heart* when she quoted her favorite neighbor, "When I see these painfully tidy households where there is no clutter of toys, no dust, no papers strewn about, I sometimes get uncomfortable, thinking of the mess our teeming family strews in its wake. And then I wonder. Usually these places are childless, or the homes of young couples with babies not yet old enough to make a mess. And I wonder if maybe this other isn't like soil to a plant? Possessions, even clutter, furnish a kind of natural nourishment for a family. You almost have to have it to enable you to put down your roots and grow!"

Growing Up Outdoors

BY SANDY COLEMAN

Backpacking

"Guess where we're going," Amy said to her older brother as he came running into their front yard.

Matt paused to catch his breath before asking his little sister to give him the news that she was so obviously excited about. "Mom says that we're going backpacking this weekend up in the mountains!"

Amy was very excited about this, her first backpacking trip. Matt, who had been several times before with his boy scout troup, felt like a real veteran.

"We'll have a great time. Backpacking is one of the very best ways to see the outdoors and wildlife. You can walk and see things that you just don't see in any kind of car. Of course, you have to have grownups with you."

Matt began immediately to plan the items that he would take along in his backpack: toothbrush, pans, pots, alumimum foil, and many other things that he knew would be needed. "How long will we be gone?" Matt asked his little sister.

"Three days, Mom says. We leave Saturday morning," Amy said as the two skipped into the house to begin to plan their trip.

Careful thought and planning on the part of the entire family was needed during the next few days. Their mother planned the menus of freeze-dried food that the family would be eating. These kinds of food are light weight and ideal for the backpacker. Rib eye steak, chicken salad and bacon and eggs were all to be included in the meals the family would eat.

Insect repellent, suntan lotion, and a first aid kit were also among the items included in the family's gear.

The packs were adjusted in weight to balance with the weight of the person carrying the load. Amy was carrying only what is usually termed a day sack. The two tents were in the packs being carried by the children's mother and father.

Illustration by Diane Grant

That Saturday morning the family set off. The trail along the Skyline certainly was beautiful, Matt thought to himself.

The two children walked along quietly enjoying the view to be had from the Appalachian Trail.

With occasional pauses to munch on candy or sausage sticks and for drinks of cool water the troup had brought along, they continued along for the day.

"Do you think there might be bears along here?" Amy asked her older brother. "I wouldn't want one to come in our camp in the middle of the night. What would you do?"

Matt answered thoughtfully: "Well, when I went backpacking before we learned that you have to tie up your sacks at night so that the bears won't be attracted by the smell of food. We could tie them in a tree, that would probably keep the bears away. Anyway, they wouldn't hurt you. It just would be better if we could keep them away from camp."

The family passed a peaceful night, completely free of bears or scavenging raccoons.

The next day, Amy, who was an avid birdwatcher, began to look out for the different species of birds, looking them up in her field guide as she came across them. Matt began to look for wildflowers and other plants, checking the identification of them in his field book when he was unsure.

The next day passed as peacefully and enjoyably as the two before and by the end of the trip Amy was looking forward eagerly to her next trip.

"When can we go again, Mom?" Amy asked her mother as the family was once again in their car on their way home.

"Well, we'll see if we can't go one more time before winter sets in."

Amy began to plan what she would take along. "Maybe next time we'll see some bears, but I hope not," the little girl said as she settled down to sleep in the back seat.

In Nature's Garden

BY ELIZABETH MURRAY

Don't Ignore Our Roadside Weeds

The word weed has many definitions, the shortest of which is 'an unwanted plant.' This definition may apply more to the place where the plant is growing than to the species of plant. Thus a plant may be a weed in one place, but perfectly within its rights as a crop or ornamental in another. Perhaps the flowers which grow along our roadsides are not technically weeds, since they are doing no harm there. But they are frequently spreading into the farmlands behind the roadsides where they are not wanted and because of this we may retain the term weed. However, weeds or no, we need not deny them their beauty, and on this page we are showing three plants, all introduced, which brighten our Virginia roadsides in summertime.

The orange day-lily, *Hemerocallis fulva*, (Liliaceae), introduced from Eurasia as an ornamental, grows in large clumps along roadsides, fields and thickets and blooms from May to July. As both the English and Greek names suggest (*hemera*, 'a day' and *callos*, 'beauty'), each flower lasts only a day, but there are several flowers on each stalk, so they appear to bloom for longer. They rarely make seeds in this country, but rapidly spread vegetatively by means of their branching rhizomes and tuberous roots.

Chicory, *Chichorium intybus* (Compositae), was introduced from Europe as a coffee substitute. The tap roots can be roasted and ground and when mixed with real coffee make it go much further, but also give it a distinctive taste which is not to everyone's liking. There is a wry comment in Fernald's edible wild food book that the fact the chicory itself is often further adulterated with sawdust, roasted beans and dried horse liver may account for the scarcity of good coffee in European hotels. The flower of chicory is a brilliant blue and dots our roadsides and waste places from July to October.

Bouncing Bet, *Saponaria officinalis*, is a member of the pink family, Caryophyllaceae, and is also introduced from Europe, probably accidentally. It is a tall, stocky perennial with groups of very pale pink flowers on each stem. Bouncing Bet probably has more common names than any other flower, being known as Soapwort, Old Maid's Pink, Wild Sweet William, Sheepweed, World's Wonder, Fuller's Herb and Lady's Washbowl. It is particularly prevalent along railroads but is also found on roadsides, fields and waste places, and blooms from July to September.

These flowers do not deserve to be ignored just because they are introduced, common, or frequently in the wrong place. Our drives through the state would be a great deal duller without them, and we should take time to pause and enjoy them.

Orange Day Lily

Chicory

Bouncing Bet

Feathers and Flight

The Art of Diane Higgason

"I like painting the beauty of nature, the realness of it. To me that is what is truly beautiful, not the more modern abstract art."

Green-winged Teal

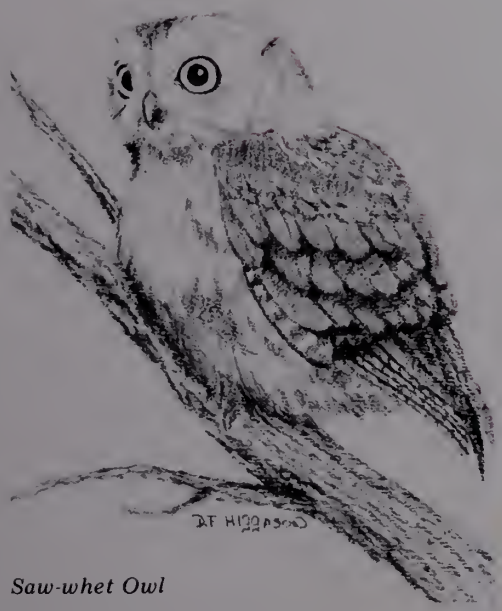
Wood Duck

Black Ducks

Diane Higgason from her home on the Mattaponi River is able to observe often — and in great detail — the wildlife that abounds in that natural setting. That, and her life-long interest in art, led her to begin painting seriously in March, 1978. From painting ducks for her husband and as presents for friends, her friendship with artist Katherine Richie (*Virginia Wildlife,* January, 1979) encouraged her to graduate to the ranks of active and successful wildlife artists. Since that decision, she hasn't looked back.

Higgason paints from mounts, photographs and from actual observation and says that accuracy is a prime consideration. Her medium is tempera, a water-based paint that can be adapted to many uses.

Diane Higgason is a member of Ducks Unlimited and regularly donates art to their fund-raising auctions.—*S.C.*



Saw-whet Owl

Mallards

Water Ski Towing Tips

Water skiing is tons of fun, not to mention good exercise, and proof of that is the fact that it's one of the fastest growing participant sports in the country.

Part of the reason for its success is that water lovers of all ages and ability can do it. And, considering that it's practically tailor-made for families, the starting up costs for a water ski rig can be very modest.

For those who are jumping into the sport for the first time this season, here are some driving tips that will help you and yours look like experts the first time out.

Pulling a skier up requires teamwork and coordination. The driver should slowly take the slack out of the tow rope. The observer should help keep the rope untangled. When the skier is ready, he yells "Hit it!" The driver then applies ample power to pull the skier up quickly, then quickly throttles back to a speed compatible with the skier's ability. For beginners this will be about 18-25 miles per hour.

Make gentle turns, at least until the skier has learned to handle the increased speed he'll feel if he should go outside the wake. Alternately, if the skier is on the inside, a fast turn will cause slack in the rope and then he'll be jerked suddenly when the rope straightens out.

If the skier should fall, the observer should keep track of his location and have the driver circle slowly, bringing the tow rope to the skier. If the skier is coming aboard, turn off the motor and have the skier board over the bow or the stern, but not the sides.

Make sure your skiers know the official hand signals.

—When the skier wants to go slower, he motions with his palm down repeating the downward motion.

—If he wants more speed, the signal is just the opposite palm up, and repeated upward motions.

—If the speed is correct for the skier, he can signal the OK sign — the thumb and forefinger forming a circle.

—An immediate stop is signaled with a flat palm and outstretched arm.

—To cut the motor, the skier moves his fingers across his throat in a cutting motion.

—To change direction, the skier motions with outstretched palm in the direction he desires to go.

—Should the skier fall into the water, he can signal the boat that he is OK by clasping his hands overhead. Also, he should hold a ski up to warn any approaching boats of his presence.

Outdoor Notebook

Photo by E.P. Haddon, U.S. Fish and Wildlife Service

Suddenly you look out of the kitchen window and there's a black bear in your yard. Not a cute little cub bear like the ones in the cartoons, but a big 200-plus pound, real live, about to eat the garbage can, bear! Are you in trouble?

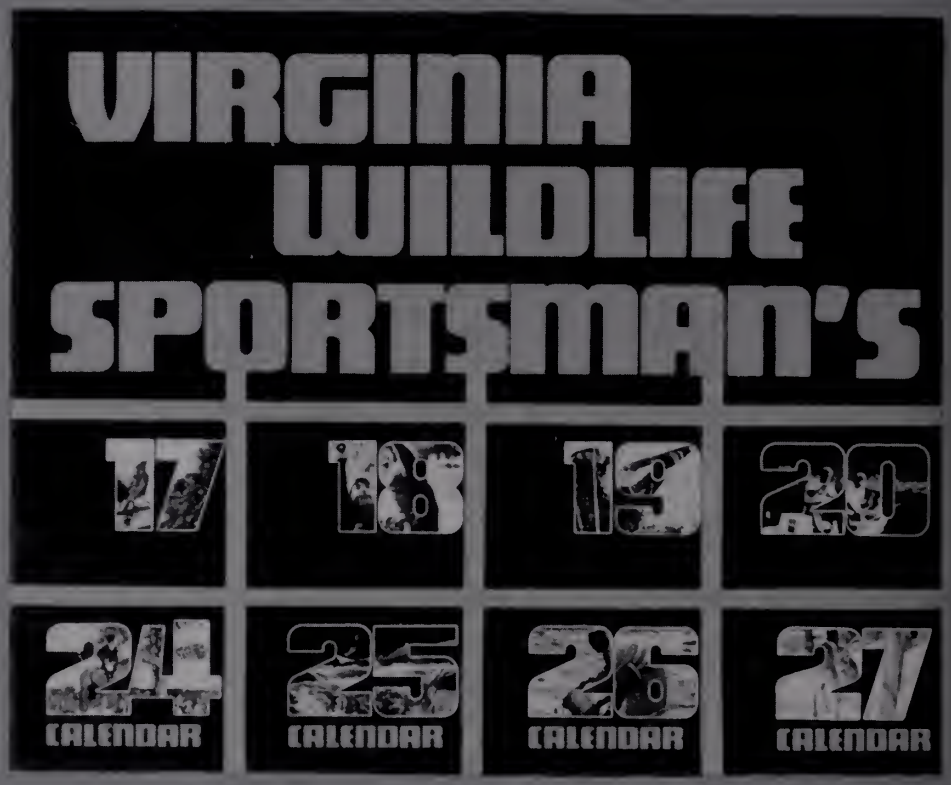
Not really, according to the Game Commission's bear expert, Jack Raybourne. Raybourne says that most black bears found in Virginia are timid animals who would rather "go the other way" when they meet up with humankind.

There have been numerous reports lately of these people-bear meetings as an occasional animal, bear type, gets the urge to wander out of its normal and often rather isolated range. Usually the reason for this wanderlust is twofold. Bears, generally younger males, take off in a search of either food or a mate. Although it is not uncommon for a bear to have a territory of a hundred square miles, this territory may be "controlled" by a dominant male who has gathered the female bears in the area into a harem. The young male looking for a mate and/or food may choose to make a move to what he thinks may be a better, more productive area. Unaware that good bear habitat is limited, he often finds himself wandering through towns and subdivisions in search of food and company. As more and more food becomes available in July and August, ripe blackberries for instance, the bears tend to settle down until the food supply begins to run out, and then it moves on to another area. Usually this movement is confined to what is considered normal bear territory, but occasionally a bear will make long trips for reasons which are not completely known. There is a report of one young male who was routinely captured during a bear study on the Blue Ridge — two weeks later the bear was discovered in Henrico County, and subsequently shot by an unthinking resident who incorrectly thought that the bear was a threat to the neighborhood. The bear later had to be destroyed by law enforcement personnel.

Perhaps the most famous wandering bear in Virginia was a young female who was eventually named Rambling Rose. Rose had become a habitual, and unwanted, guest at picnics in Shenandoah National Park and it was decided that, for her own good, she would be relocated. Taken from her home territory in Augusta County, Rose was moved to Sounding Knob in Highland County, a distance of some 60 air-miles. Rambling Rose was back at the Park in six days. Trapped again, she was sent to Mountain Lake in Giles County, which is about 130 air miles from the bear's home base. Rose returned again and was caught eleven days later. Not to be outdone, the authorities gave Rose a nice long ride to the Dismal Swamp. Rose left immediately, went to North Carolina and headed up the Roanoke River drainage on the way back to the mountains. This story probably would have ended up with another move had Rose not encountered a car in a small North Carolina town and was injured beyond repair. In all, it is estimated that Rambling Rose traveled at least 800 air miles during her summer's odyssey.

What should you do if you see a bear? Enjoy watching it from a distance and let it go on its way unmolested. Most bears, about 99% are shy and will turn and run from most people. The other approximately 1 percent have lost their fear of man and, if bothered, can be very dangerous. But any bear that is frightened and cornered will fight, and a bear is a very large, powerful animal that can quite easily defend itself. So let the Rambling Roses of the bear world ramble on — they're probably headed home anyway.

The Virginia Wildlife Sportsman's Calendar is back!



Time is running out for your chance to order the 1979-80 *Virginia Wildlife Sportsman's Calendar!* Last year we sold out of this beautiful calendar long before we stopped receiving orders . . . and it's not hard to see why! For the low price of $2.00 you get 12 beautiful color prints suitable for framing, plus a wealth of information on the best times to hunt and fish, sunrise and sunset for every day in the year, fall leaf coloration peaks, bird migration times . . . we could go on and on. For the sportsman, as well as the naturalist . . . or for someone who just enjoys beautiful wildlife art, this calendar is an incredible bargain.

The *Sportsman's Calendar* begins with September, 1979 and ends with August, 1980 to correspond with your outdoor activities . . . so there isn't much time. Don't be one of those who missed out by ordering too late! Use the form found on the back of your July issue, or send your check for $2.00 payable to Treasurer of Virginia: Sportsman's Calendar, P.O. Box 11104, Richmond, Virginia 23230.

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Governor Appoints New Commission Members

Governor John N. Dalton has announced the appointment of two new members of the Commission of Game and Inland Fisheries. The two newly appointed Commission members are Dr. George L. Sheppard, Jr. and Mr. Richard T. Spain, Jr.

Dr. Sheppard is from Winchester, Virginia and will represent the Seventh Congressional District. Dr. Sheppard replaces Mr. William H. West of Upperville who has resigned after eight years on the Commission.

Mr. Spain takes the seat recently resigned by Mr. John P. Randolph of Colonial Heights. Mr. Spain resides in Waverly, Virginia and will represent the Fourth Congressional District.

Governor Dalton also announced the reappointment of two Commission members. Dr. James R. Knight of Warsaw will continue to represent the First Congressional District, and Dr. Allan A. Hoffman of Danville will continue to serve from the Fifth District.

VWF Award Deadline Extended

The deadline for nominations for the Virginia Wildlife Federation Conservation Awards program has been extended from August 15 until September 1. The categories include: Conservation Communicator, Youth Conservationist and Conservation Educator, among many others. For further details see June *Virginia Wildlife*, page 29 or write to: Conservation Awards Center, P.O. Box 3609, Norfolk, Virginia 23514.

VIRGINIA WILDLIFE FEDERATION
SOIL WATER FORESTS WILDLIFE RESTORE CONSERVE

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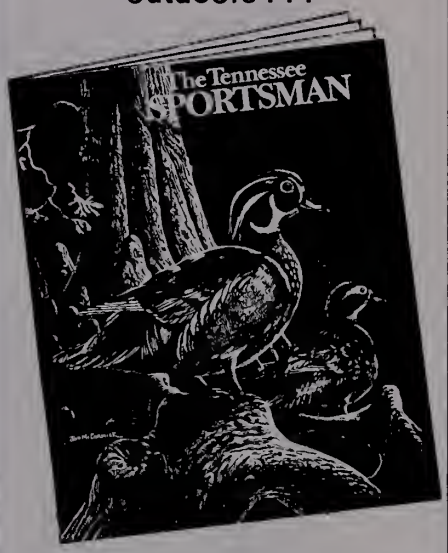

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WILD CHERRY JELLY

A DIFFERENT WAY TO ENJOY THIS DELICIOUS FRUIT.

BY MARJORIE LATHAM MASSELIN

There is a wild cherry tree in my backyard. It has been butchered on one side because the neighbor there complained that the fruits were spoiling her flowers, so we hacked off the offending branches. It has an enormous birdhouse in its top which is something of a cross between a martin house and a dove cote. All kinds of creatures go in and out, not just birds, but squirrels and chipmunks, as well. Many a time I have watched a squirrel, caught short in a sudden shower, take the fence at a leap and scramble up the trunk to give himself a shake and crawl into the attic apartment. But whether any of these sometime visitors actually live in the place, or whether they merely use it as a way station for drying out, or, perhaps, as a tourist attraction heard of during their migrations, I have never satisfactorily determined.

No doubt, this is because I am content to observe their comings and goings from my kitchen door, one hand stirring the sauce and the other shading my eyes against the afternoon sun, the better to see the antics of the wildlife and the state of the cherry crop.

I have never seen much merit to the wild cherry in its raw state. Except for a thin outer layer of tart, often bitter flesh, the little black fruits seem always to consist primarily of pit. But, once the juice has been extracted and sweetened, the flavor is magically transformed. You can preserve the juice by filling Mason jars to a half inch from the top and then processing them in a hot-water bath for ten minutes. Quarts or pints require the same length of time. The juice is then available for winter use in puddings, sauces, and if you like to renew acquaintance with old fashioned remedies, it can be mixed with honey and used as a syrup to relieve a scratchy throat. Some of the old herbals tell us that the cherry will cure just about anything from coughs to gout! About its actual curative properties I am definitely not qualified to comment, but I can assure you it seems to relieve symptoms.

What with the competition from the chipmunks (not to mention the fruit-loving birds), I seldom get enough cherries to make a canner full of even pints of juice. What I do make is a batch — and sometimes two — of wild cherry jelly. This is a clear, dark, delicacy that ranks with currant and barberry jelly as an accompaniment for wild game.

But one does not need the game to enjoy wild cherry jelly. It stands quite by itself just as a sweet. It rivals raspberry as a filling for clothespin cookies (perhaps you call them thumbprint). On rice or bread-custard puddings, it is a topping *par excellence*. It makes exquisite little tea sandwiches, especially when you butter the edges and touch them all around in toasted almonds. And I promise you that nobody has yet dis-

covered a more superior filling for a jelly roll.

To make it, you will need a preserving kettle of generous proportions, commercial pectin, sterilized jelly glasses, paraffin, sugar, a jelly bag and some wild cherries, either the black kind that I have in my yard or choke cherries which are red and grow in the wild on a bushier, more shrub-like tree. Wild cherries grow in clusters and have to be pulled off the stems.

Put the cherries in the kettle with just enough water to keep them from burning until they begin to give up their juice. Use low heat and have patience; jelly making cannot be rushed.

After the cherries have simmered for fifteen minutes or so — and the depth of the fruit in the kettle governs the cooking time — turn off the heat and let the fruit sit until it cools enough so that you can handle things easily. Meanwhile, arrange your jelly bag in a sieve or a colander or something that can be stabilized in the pan or bowl that will receive the juice. Ladle the juice and fruit into the bag and let it drip without squeezing until it has all seeped through. I find the most convenient time of day for this phase of jelly making is in the evening when dinner is over and the kitchen is closed for further service. This way the jelly bag can go on dripping its droplets all night with no impatient pressures exterted to cloud the juice. Then next morning when the house is empty again, I can measure the juices and the final steps.

With commercial pectin there is no dependence on the sugar or cooking down to make the jelly jell, so it is necessary to sweeten the juice only as much as taste demands. I find that a cup of sugar to a cup of juice is fine, but you may want it sweeter.

Once you have the sweetened juice in the jelly kettle, let it come to a full rolling boil that cannot be stirred down. Add the liquid pectin (which I prefer to the dry kind), and then let it boil for one minute. Test it to see that it really does sheet from the spoon, or if you are not familiar with that term, until the last drop clings to the spoon. Pour it into sterilized jelly glasses and let it cool, preferably in a sunny window. Then pour a thin layer of melted paraffin on top, making sure that the wax meets the glass all around to make a perfect seal. Cap it when the wax is set and store in a cool dark place.

If you want to experiment with a small quantity of wild cherry juice to be certain of the flavor and the handling of the cherries, you might like to prepare a little Danish Fruit Soup. This is nothing more than cherry juice sweetened to taste and thickened with a little arrowroot or cornstarch. Make it thin for a real soup which we like as a dessert with a dollop of real whipped cream on top. If you prefer it like a real pudding, then make it a trifle thicker to get the desired consistency.

JOHN W. TAYLOR

BY JOHN W. TAYLOR

The Indigo Bunting

It would be hard to convince anyone who has once seen an indigo bunting that there is no blue pigment in its feathers. The blue of this bird is sometimes startling in its intensity.

Yet, it is primarily a structural color, the blue effect dependent entirely on the incidence of light rather than on any chemical property within the feather itself. The physical structure of the feather breaks up the components of white light, reflecting only the blue. (Most other colors in birds, the reds, yellows and browns, are the result of pigmentation within the feather itself.)

This phenomenom explains the changeable, silken quality of the bunting's plumage. It seems to vary, depending on light conditions and the angle of view, from deep azure, with hints of purple, to a greenish cerulean hue. Seen against the light source, it seems drained of all color.

This peculiar quality of the bunting's plumage fascinated Alexander Wilson, perhaps the first ornithologist to write in depth about the indigo bunting. (Catesby and Bartram mention it only briefly.) Wilson writes, ". . . the same bird, in passing from one place to another before your eyes, seems to undergo a total change of color. When the angle of incidence, reflected from his plumage, is acute, the color is green; when obtuse, blue."

Wilson found the bird abundant along the Jersey coast, one of his favored "stomping grounds." It remains a common bird there today, and throughout the eastern and middle states, despite drastic environmental changes since.

Adaptability has been the key to its success. It will thrive in a variety of habitats, though preferring the border or edge situation, such as along roadside hedgerows or at wood's edge. Brushy undercover, mingled with a few saplings and young trees suit it ideally, but it will live as well in open second growth woodland or in a marshy situation. An occasional pair will find a suburban garden to its liking.

Wherever it takes up residence, it somehow seems out of place in the North American landscape. One normally associates such brilliant, dazzling blues with tropical birds. Many species of the equatorial rain forests show such colors, but few in North America do.

The tropics are, in fact, the winter home of the indigo bunting. It migrates south, leaving in September and, taking the route through Mexico, reaches Central America by the time its summer haunts are chilled with October's first frosts.

By early May, the buntings are back in the brushy pastures of their birthplace. The male, mounting a prominent lookout, announces his return with bursts of spirited song. Not a continuous strain, it is a series of high-pitched, finch-like notes, lasting four to six seconds, then trailing off weakly. It is repeated persistently, with brief pauses between each delivery.

When the warmth of May turns to the heat of June and July, the indigo continues to sing. Not even a stifling mid-summer sun can still him. At a period when most of the songbirds have fallen silent, the bunting sings on, even at mid-day.

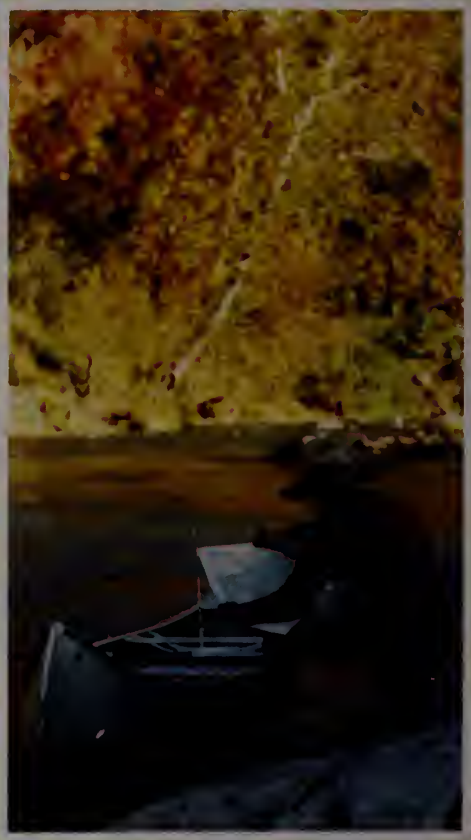
All of this time, the female of the species remains unseen. Shy, furtive, sombre-hued, she is noticed only when her nest is approached. Then her nervous, worried calling draws attention. Overall, she is the color of dried grass, a pale, flaxen brown, with but a trace of blue in the wings and tail. (After the autumnal moult, along about mid-August, the male assumes a similar plumage.)

Under normal circumstances, buntings raise two broods of youngsters each nesting season. A clutch of four eggs takes about twelve days to hatch, and in another ten days, the fledglings are ready to leave the nest. After a week or so of parental care, the youngsters are on their own. So it takes just a little over a month for a brood to reach maturity.

In summer, the diet of the indigo bunting, both adult and young, is composed chiefly of insects: grasshoppers, caterpillars, beetles, and plant lice. At other seasons, it becomes a vegetarian, dining on the seeds of weedy plants.

In every Virginia county, the indigo bunting is a common to abundant breeding bird. It is somewhat less common along the coast, and of only scattered distribution in the high elevations along the mountain ridges.

Make your outing safer and more enjoyable



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